

# GIUSEPPE PES

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I'm an enthusiast software engineer with a particular interest in *C* programming and *Linux*. I also do lots of work in *JavaScript*, *Java* and *Python*. I learnt programming when I was 15 on my own and since then it has become my greatest passion. In my spare time, I love trying new technologies (recently *ReactJS* and *WebRTC*) and contribute to open source projects.

## SKILLS

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**Programming:** C, C++, Java, JavaScript, Python, Assembler(x86)

**Frameworks:** Express, Django, Jetty, Spring, BackboneJS, ReactJS, MartyJS

**Operating Systems:** Linux (Gentoo, Arch, Ubuntu), FreeBSD

**Languages:** English [fluent], Italian [native speaker]

**Interests:** Cooking, Reading, Startups, Dancing

## RELEVANT WORK EXPERIENCE

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**Full stack developer (NodeJS, Python, JavaScript) Qubit** *Sept 2014 - Now*

- I successfully moved a monolithic *Rails* application to a microservice architecture based on *NodeJS*. The new *microservice* architecture delivered a 20% improve in performance.
- I developed and I am currently the responsible for a *job queue* system which processes all statistical results for Qubit A/B tests.
- I contributed to the design of a profile specification which allows to precisely describe segment of visitors. The profile specification is successfully employed to identify segment of visitors across the entire Qubit infrastructure.
- I am currently involved in the development of an audience segmentation tool. As part of my job, I successfully implemented a cookie compression lib which achieved 80% *compression rate*. Main technologies used *NodeJS*, *ReactJS* and *Flux*.

**Backend developer (Java) IBM** *Sept 2013 - Aug 2014*

- As Java developer, I was involved in the development of Survey Analytics. I delivered software solutions based on *JavaEE*, *EJB 3.1*, *Spring* and *WebSphere*.
- I implemented a categorization system for customer feedbacks. The system used an instance based algorithm (k-NN algorithm) to classify customer feedbacks in different categories. The system achieved a 80% precision in average and was employed in the landing page of the platform.
- I worked along with a Canadian team on *Watson Analytics*. I contributed to devise and developed a meta-data syntax to correctly map natural language questions to the correct data set.

## EDUCATION

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**M.Sc. Computing, Specialism in Software Engineering [Graduated with Distinction]** *Sep 2013*  
*Imperial College*, London, UK

*Main subjects:* Software Engineering for Industries, Advanced Object Oriented Programming, Machine Learning, Systems Verification, Performance Analysis, Advanced computer Architecture, Advanced Databases.

- **Multi-Variant Execution System, (C, C++, Assembly)** *4 months*  
As final project for my MSc, I designed and implemented a new user space security mechanism which provides a runtime protection against security threats, preventing an attacker from performing any malicious action as well as recording its attempts. The prototype has been successfully employed to identify and prevent attacks based on buffer overflows on real applications like *Lighttpd* and *Apache*. The project lasted for 4 months and was developed in *C* and a small part in *Assembly*. Relevant technology used *seccomp-BPF*.

- **Sytem call interceptor, (C)** 3 months  
I analysed different technologies which can be used to implement a system call interceptor for *sandboxing* purposes in Linux, such as *ptrace*, *utrace*, *seccomp*, *kernel enhancements* and *binary rewriting technologies*. In addition, I had the opportunity to study in details *seccompsandbox* and *minijail* the sandboxes used by Chrome, and to develop my own solution using *ptrace* and *seccomp-BPF*.
- **Mobile Healthcare Delivery, (Java, JavaScript)** 3 months  
As a coordinator of the group project, I lead the successful implementation of a web application for *Mobile Healthcare Delivery* for a London start-up called *Cupris*. I internally managed a team of 5 students. The application was a success and satisfied all requirements requested by the company. The outcome of the project became the MVP used by the startup. The main technologies used were *Java* and *Jetty* in the back-end and *BackBoneJS* as front-end framework.

## B.S. Computer Engineering [110/110 (first class)]

July 2011

*University of Pisa, Pisa, IT*

*Main topics:* Software engineering, Computer architecture, CPU design, Objects oriented programming, database, operating system, management.

- **Final project, (C, Assembly)** 3 months  
I implemented a *file system* compatible with *FAT32* for a *kernel* developed by the computer engineering department. The result was a fully functional file system along with a complete system call interface (UNIX compatible) which could be used to manage files. It was an individual project that lasted for 3 months during my last year, principally developed in *C* and *Assembly (x86)*.
- **Java MM, (C++)** 1 month  
Implementation of a *compiler* for *Jmm* (Java minus minus), a restricted subset of Java. The compiler was implemented in *C++*.
- **HTTP Exchange, (PHP)**  
Designed a protocol based on HTTP for a real time data exchange between two clients. The protocol has then

## OTHER PROJECTS

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- Seevcam, Cloud video interview platform** 2015  
*Seevcam* is a *cloud video interview tool*. I fully implemented the application on my own. The platform has been successfully employed to carry out real interviews. Main technologies used *Python 3*, *WebRTC* and *BackBoneJS*.
  - Squiddy Multi users video conference** 2014  
*Squiddy* is a multi users video conference application that I build on my own in 2014 to learn *WebRTC*. Squiddy is built using vanilla *WebRTC* and performs session renegotiation when any of the multimedia options change. *Squiddy* can have up to 5 contemporary users in the same conference room.
  - Ligthttpd Open source contribution** 2014  
Submitted patch to fix *MOVE* and *COPY* requests in the *WebDAV* protocol implementation when aliasing folders are used.